1 ~~THE~~ CLAIMS

2 **CLAIMS**

3 1. Cancelled.

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(New Claim) 132. A process for treating wood having wood cellulose having a plurality of hydroxyl groups comprising the steps of:

providing a solution comprised of:

a solute compound having a plurality of functional groups wherein each of which functional group includes;

an atom selected from the group consisting of tetravalent atoms, wherein said atom

is bonded to a halogen atom or a functional group selected from the group consisting of a hydroxyl group, alkoxy group, phenoxy group, benzyloxy group, an aryloxy group having a polycyclic aromatic ring, and combinations thereof; and

at least one acid catalyst;

applying said solution to the wood cellulose, and

an organic solvent allowing a solute compound to be drawn from the solute to the wood by an acid generating reaction within the wood;

reacting said functional groups to form covalent bonds with other functional groups of said solute and to said wood cellulose and wherein the acid catalyst is produced by a molecule producing an acid after the application to water in the wood cellulose.

(New Claim)133. The process according to claim 132further comprising the step of reacting said solute compound functional groups only upon contact with the wood cellulose or water in wood cellulose..

(New Claim) 134. The process according to claim 133 further comprising the steps of simultaneous reaction and diffusion of the functional groups in the wood and a heat generating reaction of said functional groups upon application to the wood to form covalent bonds with other functional groups of said solute and to said wood cellulose.

(New Claim) 135. The process of claim 134 wherein the acid catalyst comprises a substance which reacts with water in the wood to generate acid in a heat generating reaction so that the functional groups bonds from the, tetravalent atom across an oxygen of the cellulose hydroxyl group.

(New Claim) 136. The process of claim 135 wherein the acid catalyst is added to the wood cellulose after application of said solution to the wood cellulose.

(New Claim) 137. The process of claim 135 wherein the acid catalyst is added to the solution

prior to application of the solution to the wood cellulose.

(New Claim)138. The process of claim132 wherein the acid catalyst is in the range of 0.05-10% of the solution.

(New Claim) 139. The process of claim138 wherein the acid catalyst is in the range of 0.05-4.9% of the solution.

(New Claim) 140. The process of claim 132 wherein the acid catalyst is strong acid.

(Canceled) 141. The process of claim 140 wherein the acid catalyst has a pKa below 2.5

(New Claim) 142. The process of claim 132 wherein the acid catalyst is in the range of .01-10% in situ the wood.

(New Claim) 143. The process of claim 132 wherein the acid catalyst is a molecule comprised of silicone and a halogen.

(New Claim) 144. The process of claim 132 wherein the concentration of organic solvents is in the range from 0-20%.

(New Claim) 145. The process of claim 144 wherein the percentage of organic solvents is in a range of 0 to 10%.

(New Claim) 146. The process of claim 132 wherein the organic solvent is at a concentration of at least 10% of the solution.

(New Claim) 147. The process of claim 145 wherein organic solvents are at a concentration of 30%-99.9% of the solution.

(New Claim) 148. The process of claim 132 wherein the organic solution is less than 20% oligomers of the functional groups prior to applying the solution to the wood.

(Cancelled) 149. The method of claim 132 wherein the organic solvent is an organic solvent with a (K_{ow}) less than 10.0.

(Cancelled) 150. The method of claim 149 wherein the organic solvent is an organic solvent with a (K_{ow}) less than 1.0.

(Cancelled) 151. The method of claim 150 wherein the organic solvent is an organic solvent with a (K_{ow}) less than 0.

(New Claim) 152. The process of claim 132 further comprising the step of:

adding at least one non-reactive additive to the wood cellulose that enhances a desired property selected from the group consisting of:

(1) fire resistance,

(2) insect resistance,

(3) moisture resistance,

(4) color,

(5) adhesion,

(6) insulation, and

(7) combinations thereof.

(New Claim) 153. The process of claim 152 wherein the step of adding at least one non-reactive additive further comprises adding the additive to the solution.

(New Claim) 154. The process of claim152 wherein the step of adding the at least one non-reactive additive occurs before reacting the functional groups to bond with the wood cellulose

(New Claim) 155. The process of claim 152 wherein the additive is from the group consisting of:

1) diatimatious earth,

2) sodium silicates,

3) boron salts,

4) boric acid,

5) trimethy borate,

6) Boron Halides,

7) Boric Anhydride,

8) phosphorous compounds,

9) copper compounds,

10) metal alkoxide,

11) meta-phosphoric acid;

12) phosphoric acid,

13) metaphoshoric acid,

14) silicone salts

15) trialkyl borate

16) boron oxide, and

17) combinations thereof.

(New Claim) 156. The process according to claim 132, wherein the wood cellulose has an original weight and wherein the duration of treatment attains a weight of compound which is covalently bonded to the wood cellulose having a range of 0.1 to 10 weight percent of the original weight of the wood cellulose.